

IN THE CLAIMS:

Please CANCEL claims 28 and 29 without prejudice to or disclaimer of the recited subject matter.

Please AMEND claim 25, and ADD new claims 35-40, as follows. For the Examiner's convenience, all claims currently pending in this application have been reproduced below:

1-24. (Cancelled)

25. (Currently Amended) A projection exposure apparatus comprising:

an illumination optical system for illuminating a pattern of a first object, with use of exposure light from an exposure light source;

a projection optical system for directing the exposure light, emitted from the pattern, onto a second object; and

an interferometer for measuring an optical characteristic of said projection optical system, on the basis of an interference fringe produced through interference caused between light emitted from said projection optical system ~~toward the second object side~~ and reference light,

wherein a light receiving portion of said interferometer for receiving light emitted from said projection optical system toward the second object side is provided on a movable stage which carries the second object thereon.

26. (Previously Presented) An apparatus according to Claim 25, further comprising means for detecting a curvature of field of said projection optical system, by use of said interferometer.

27. (Previously Presented) An apparatus according to Claim 25, further comprising means for detecting an aberration of said projection optical system, by use of said interferometer.

28. (Cancelled)

29. (Cancelled)

30. (Previously Presented) An apparatus according to Claim 25, further comprising means for correcting a state of aberration of said projection optical system, on the basis of the measurement made by use of said interferometer.

31. (Previously Presented) An apparatus according to Claim 25, further comprising adjusting means for adjusting an amount of aberration of said projection optical system, into a desired state.

32. (Previously Presented) An apparatus according to Claim 25, further comprising driving means for moving an optical element of said projection optical system, on the basis of the measurement made by use of said interferometer.

33. (Previously Presented) An apparatus according to Claim 25, further comprising means for determining whether the operation of said apparatus should be discontinued, on the basis of the measurement made by use of said interferometer.

34. (Previously Presented) A device manufacturing method, comprising the steps of:
 exposing a workpiece by use of an exposure apparatus as recited in Claim 25;
and
 processing the exposed workpiece.

35. (New) An apparatus according to Claim 25, further comprising an interference light source separate from the exposure light source, wherein said interferometer uses light from said interference light source.

36. (New) An apparatus according to Claim 35, wherein said interference light source is a light source which emits light having a wavelength of at least one of 496 nm and 363.8 nm.

37. (New) An apparatus according to Claim 36, wherein said interference light source is an argon laser.

38. (New) An apparatus according to Claim 25, wherein the light receiving portion includes a mirror.

39. (New) An apparatus according to Claim 38, wherein said mirror is a spherical surface mirror.

40. (New) An apparatus according to Claim 25, wherein the light receiving portion includes an objective lens and a mirror.